

## Megha-Tropiques, GPM and the Precipitation virtual constellation

### Description

Megha-Tropiques is a joint ISRO-CNES spatial mission dedicated to the intertropical zone and focused on the atmospheric energy budget and water cycle. Megha-Tropiques is scheduled to be launched in 2009. In particular, with its Madras microwave imaging radiometer, Megha-Tropiques will be able to monitor precipitation with an enhanced sampling in the Tropics, what will be very useful in the context of GPM and Precipitation virtual constellation.

At the scientific level, Megha-Tropiques French scientists are involved in several international precipitation groups: NASA Precipitation Measurement Missions (PMM) science team meeting, International GPM workshops, International Precipitation Working Group... In all these groups, there is a strong expectation for Megha-Tropiques.

At the programmatic level, contacts have been established between GPM (NASA and JAXA) and Megha-Tropiques (ISRO and CNES) to discuss the introduction of Megha-Tropiques as a component of GPM.



### Added value

Introduction of Megha-Tropiques as a component of GPM would be very profitable to the latter in terms of precipitation sampling in the most rainy regions of the world, the Tropics. The time frame of the missions is still compatible. Reversely, Megha-Tropiques would benefit from the rainfall retrievals of the other satellites of the GPM constellation, especially the mother satellite for intercalibrations. But even alone, Megha-Tropiques would contribute to global precipitation monitoring, with a lot of applications such as climate change assessment, improvement in monsoon forecasts, flood prediction, water resource management.

## Relevance to GEO

Megha-Tropiques is relevant for at least 3 Societal Benefit Areas :

- Climate: Understanding, assessing, predicting, mitigating, and adapting to climate variability and change;
- Water: Improving water-resource management through better understanding of the water cycle;
- Weather: Improving weather information, forecasting and warning.

It will contribute to the following GEOSS implementation target: “Facilitate, with space agencies and research communities, more accurate, frequent (3-hourly), global, high spatial resolution, and micro-physically detailed measurements of precipitation through a global constellation of satellites carrying passive micro-wave radiometers in complementary orbits”.

## Participants

- CNES
- ISRO

## Current status and next steps

The satellite Megha-Tropiques is currently in phase C. Megha-Tropiques scientists are currently developing the algorithms for level 2 data and more.

A trilateral NASA-CNES-ISRO should be organized in 2007 to discuss thoroughly the implications of Megha-Tropiques and GPM partnership. CNES will participate to the 1<sup>st</sup> CEOS Precipitation Constellation Workshop (June 2007).

Scientific work and exchanges will continue in the area of precipitation measurement from space.